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EXAMINER

SHANG, ANNAN Q

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/521,240

Applicant(s)

SUEMATSU ET AL.

Examiner

Annan Q Shang

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3 and 5-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-15, 8-11, 17-18, 26, 29, 30, 32, 33, 34, 36-39, 41, 42, 46, 47 and 48, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Macdonald et al (5,835,128)** in view of **Ackermann et al (6,137,280)**.

As to claim 12, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose a millimeter wave receiver for performing millimeter wave radio transmission indoors. The claimed millimeter wave receiver comprising...is met as follows: the claimed "a millimeter wave receiving circuit..." is met by Receiving Antenna (RA) 36 (fig. 3 and col. 8, line 50-65), note that RA 36 is a receiving circuit that receives 60 GHz "millimeter waves" obtained by up-converting a plurality of broadcasting waves, to be transmitted/received indoors; the claimed "a broadcasting wave demodulation circuit..." is met by Low Noise Block (LNB) 108, (col. 8, line 61-col. 9, line 44) note that LNB 108 is a demodulation circuit that down-converts the 60 GHz signal to the frequency band of the broadcasting waves; the claimed "a connection unit..." is Line 112 (col. 9, lines 15-27), note that Line 112 is a connection

that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus" having a function of receiving broadcasting, note further that IRD or Set-top box (STB) 110, includes a power transmitter, that drives DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112.

Macdonald fails to explicitly teach a connector provided on the IRD or Set-top box (STB) 110.

However, **Ackermann et al** teaches female connectors 238, 240 which can be mated on output 34 male connectors to connect a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald to provide connectors to connect devices together as a unit.

As to claim 13, Macdonald further discloses where R-13, transmits radio waves of 60 GHz band, note col. 8, lines 23-49.

As to claim 14 Macdonald further discloses where the broadcasting waves include at least one of radio waves of radio frequency band of terrestrial waves and radio waves of an intermediate frequency band of satellite broadcasting, note col. 4, lines 6-18 and col. 7, lines 29-50.

As to claim 15, Macdonald further discloses where the RU 100 comprises Line 112 connected between IRD or STB 110 and RU 100 for receiving the plurality of

broadcasting waves, and DP 114 "mixing/switching circuit" outputting one of the broadcasting waves received by the IRD or STB 110, output signals from the LNB 108 "demodulation circuit" and signals obtaining by mixing the broadcasting waves and the output signals, note col. 8, lines 50-col. 9, line 38. The claimed "connector..." is met as previously discussed with respect to claim 12.

As to claim 17, Macdonald further discloses a video/audio signal processing circuit producing at least one of a video signal and an audio signal on the basis of internal information of RU 100, note col. 9, lines 27-44, a modulation circuit modulating the signal produced by the video/audio signal processing circuit to broadcasting wave receivable in the TV Set and a mixing circuit mixing an output wave from the modulation circuit with broadcasting waves input through the connection unit, note col. 9, lines 27-44

As to claim 18, Macdonald inherently teaches a plurality of output terminals, note col. 9, lines 27-44, note that STB 110 includes a plurality of output terminals and distributes output signals from the broadcasting LNB 108 to the plurality of terminals.

As to claim 26, Macdonald further discloses a control signal receiving circuit that receives control signal from the STB 110 or TV Set through Line 112, (col. 9, lines 15-26).

Claim 29 is met as previously discussed with respect to claim 10.

As to claim 30, Macdonald further discloses RU 100, that receives external control signal in accordance with the channel selected, (col. 9, lines 15-38).

As to claim 32, the claimed "a power circuit" is inherent RU 100, (col. 9, lines 15-26), note that IRD or STB 110 supply DC signal through line 112 in accordance with channel selection by the user, note that the user selection of different frequency band causes and interrupt signal from the STB or IRD which supplies power to the plurality of circuits including RU 100.

As to claim 33, Macdonald further discloses "non-directional antenna," for receiving the 60 GHz signals, (col. 8, lines 50-65).

Claim 34 is met as previously discussed with respect to claim 26.

Claim 36 is met as previously discussed with respect to claim 32.

As to claim 37, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose an electronic apparatus capable of utilizing an output signal from a millimeter wave receiver. The claimed electronic apparatus comprising...is met as follows: the claimed "memory circuit..." is inherent RU 100 (col. 9, lines 15-27), note that RU 100 stores information as to whether or not to utilize the output signal by demodulating the received signal, strips a particular television signal from the provided band of television signals according to the channel selected by the user and delivers this to the television screen; Connection Line 112, (col. 9, lines 15-44), is a connection that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus" having a function of receiving broadcasting, note further that IRD or Set-top box (STB) 110, includes a power supply circuit, that drives

DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112.

Macdonald fails to explicitly teach a connector connected to RU 100.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald to provide connectors to flexibly link device together as a unit.

As to claim 38, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose an electronic apparatus capable of utilizing an output signal from a millimeter wave receiver. The claimed electronic apparatus comprising...is met as follows: Connection Line 112, (col. 9, lines 15-44), is a connection that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus;" the claimed "a control signal transmission circuit transmitting a control signal indicating information provided in said electronic apparatus..." is inherent to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus," (col. 9, lines 15-44), note that receives control signals indicating information

provided of IRD or Set-top box (STB) 110, to select a frequency band containing the desired television signal through connection unit Line 112

Macdonald fails to explicitly teach a connector connected to RU 100.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald to provide connectors to connect devices together as a unit.

As to claim 39, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose an electronic apparatus capable of utilizing an output signal from a millimeter wave receiver. The claimed electronic apparatus comprising...is met as follows: the claimed "memory circuit..." is inherent RU 100 (col. 9, lines 15-27), note that RU 100 stores information as to whether or not to utilize the output signal by demodulating the received signal, strips a particular television signal from the provided band of television signals according to the channel selected by the user and delivers this to the television screen; Connection Line 112, (col. 9, lines 15-44), is a connection that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus" the claimed "a control signal transmission circuit transmitting a control signal responsive to information stored in the memory circuit..." is

inherent to IRD or Set-top box (STB) 110 and also to a TV Set “an electronic apparatus,” (col. 9, lines 15-44), note that receives control signals responsive to information stored in the memory circuit to Line 112 connected between RU 100 and IRD or Set-top box (STB) 110, to select a frequency band containing the desired television signal through connection unit Line 112.

Macdonald fails to explicitly teach a connector connected to RU 100.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald to provide connectors to connect devices together as a unit.

As to claim 41, note the **Macdonald et al** reference figure 2, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose and further disclose a repeater connected to antenna receiving broadcasting for making a relay to a terminal. The claimed repeater comprising...is met as follows: the claimed “broadcasting wave input circuit...” the claimed “a broadcasting wave input circuit...” is met by Amplifier (Amp) 66 and Insertion Unit (IU) 68 (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; note

that Tra 13 and RU 100 together meets the claimed repeater; the claimed “a frequency arranging circuit temporarily converting a radio frequency signal band of terrestrial waves to a higher intermediate frequency band, thereby changing the frequency...” is met by Mixer 70 and Local Oscillator (LO) 72 (col. 7, lines 59-65), note that Mixer 70 and LO 72 form a frequency arrangement circuit that temporarily converts the RF signal of Antenna 69 (col. 7, lines 48-51) “terrestrial waves” a local television signal to a higher intermediate frequency (from 13.0 GHz to 13.95-14.70 GHz) band, thereby changing the frequency arrangement of the broadcasting signals. Two-Channel LNB (TC-LNB) 16 (fig 2 and col. 7, lines 35-37), is connected between a Receiving Horn (Rec-H) 60 and Antenna (Ant) 14 and signals received by Ant 14 is reflected into Rec-H 60 and is provided to TC-LNB 16; the claimed “power supply circuit supplying power to said antenna...” is inherent to IRD or Set-top box (STB) 110 “terminal” (col. 9, lines 15-27), which supplies driving DC signal to Ant 95 or RU 100 through Line 112; note further that IRD or Set-top box (STB) 110, drives DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112.

Macdonald fails to explicitly teach a connection unit provided on the IRD or Set-top box (STB) 110.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald to provide connectors to connect devices together as a unit.

As to claim 42, the claimed control signal receiver receiving control signals from the IRD or Set-top box (STB) 110 through Line 112 is inherent to RU 100.

As to claim 46, the claimed "a millimeter wave transmitter for performing..." is composed of the same structural elements that were discussed in the rejections of claim 1, Macdonald further teaches that Tra 13 may be mounted on a wall, window (col. 5, lines 7-14) to transmits 60 GHz signals to RU 100 units mounted on IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44) movable electronic apparatus mounted with a millimeter wave receiving the millimeter..." is met by IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44), note that the STB TV 110 are mounted or connected by RU 100 to receive the 60 GHz signals, note that RU 100 can be place at any location to receive the 60 GHz signals.

As to claim 47, the claimed "a millimeter wave transmitter for performing..." is composed of the same structural elements that were discussed in the rejections of claim 1, Macdonald further teaches that Tra 13 may be mounted on a wall, window (col. 5, lines 7-14) to transmits 60 GHz signals to RU 100 units mounted on IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44) movable electronic apparatus mounted with a millimeter wave receiving the millimeter..." is met by IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44), note that the STB TV 110 are

mounted or connected by RU 100 to receive the 60 GHz signals, note that RU 100 can be placed at any location to receive the 60 GHz signals.

As to claim 48, the claimed "a millimeter wave transmitter for performing..." is composed of the same structural elements that were discussed in the rejections of claim 1, Macdonald further teaches that Tra 13 may be mounted on a wall, window (col. 5, lines 7-14) to transmit 60 GHz signals to RU 100 units mounted on IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44) movable electronic apparatus mounted with a millimeter wave receiving the millimeter..." is met by IRD or Set-top box (STB) 110 and also to a TV Set (col. 9, lines 15-44), note that the STB TV 110 are mounted or connected by RU 100 to receive the 60 GHz signals.

3. Claims 1-3 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Macdonald et al (5,835,128)** in view of **Tanishima (5,953,045)**.

As to claim 1, note the **Macdonald et al** reference figure 2, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose a millimeter wave transmitter for performing millimeter wave radio transmission indoors. The claimed millimeter wave transmitter comprising...is met as follows: the claimed "a connection unit connectable with an antenna for receiving a plurality of broadcasting waves" is met by Two-Channel LNB (TC-LNB) 16 (fig 2 and col. 7, lines 35-37), note that TC-LNB 16 is connected between a Receiving Horn (Rec-H) 60 and Antenna (Ant) 14 and signals received by Ant 14 is reflected into Rec-H 60 and is provided to TC-LNB 16; the claimed "power supply circuit

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supplying power to said antenna..." is met by bias tee 64 (col. 7, lines 41-44), which supplies driving DC signal to Ant 14 through TC-LNB 16, note further that TC-LNB 16 extends to Amplifier (Amp) 66 and Insertion Unit (IU) 68 "a broadcast wave input circuit..." (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; the claimed "a broadcast wave modulation circuit up-converting said broadcasting signals to millimeter waves..." is met by Summer 73 (S-73), Amplifier 86 (A-86) and Tripler 88 (T-88), (col. 8, lines 23-49), the that the S-73, A-86 and T-88 together form a modulating circuit that up-converts the broadcasting signals to a 60 GHz "millimeter waves" signal to be transmitted indoors (col. 4, lines 19-31); the claimed "a millimeter wave transmission circuit transmitting the millimeter waves" is met by Transmitting Antenna (TA) 95 (col. 8, lines 34-37), which transmits the 60 GHz signal to individual receiver units; the claimed "a frequency arranging circuit temporarily converting a radio frequency signal band of terrestrial waves to a higher intermediate frequency band, thereby changing the frequency..." is met by Mixer 70 and Local Oscillator (LO) 72 (col. 7, lines 59-65), note that Mixer 70 and LO 72 form a frequency arrangement circuit that temporarily converts the RF signal of Antenna 69 (col. 7, lines 48-51) "terrestrial waves" a local television signal to a higher intermediate frequency (from 13.0 GHz to 13.95-14.70 GHz) band, thereby changing the frequency arrangement of the broadcasting signals.

Macdonald fails to specifically teach a transmitter, that receives 60 GHz in door signals.

However, note the **Tanishima** reference figure 1 discloses a video channel selection type radio transmission apparatus on a cable side in the network and a video channel selection type radio reception apparatus on a subscriber side, where the transmission apparatus transmits/receives 60 GHz signals to/from the reception apparatus, note figures 1, 4, 5 and col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald in order to provide a transceiver to enable the user to control the transceiver and select channels.

As to claim 2, Macdonald further discloses where R-13, transmits radio waves of 60 GHz band, note col. 8, lines 23-49.

As to claim 3, Macdonald further discloses where the broadcasting waves include at least one of radio waves of radio frequency band of terrestrial waves and radio waves of an intermediate frequency band of satellite broadcasting, note col. 4, lines 6-18 and col. 7, lines 29-50.

As to claim 5, Macdonald further discloses video/audio signal processing circuit, modulation circuit and mixing circuit are met as previously discussed with respect to claim 17.

Claim 6 is met as previously discussed with respect to claim 17.

As to claim 7, Macdonald fails to specifically teach a receiver for receiving remote control signal from IRD or STB 110.

However, note the **Tanishima** teaches a VCSRTra and VCSRRec that receives remote control signals from VCSRRec for channel selection, note col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald in order to provide a receiving unit for a remote controller, in transmitter to enable the user to control and select channels directly from the transceiver or transmitter.

As to claim 8, note the **Macdonald et al** reference figure 2, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose a millimeter wave transmitter for performing millimeter wave radio transmission indoors. The claimed millimeter wave transmitter comprising...is met as follows: the claimed "a broadcasting wave input circuit..." is met by Amplifier (Amp) 66 and Insertion Unit (IU) 68 (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; the claimed "a broadcast wave modulation circuit up-converting said broadcasting signals to millimeter waves..." is met by Summer 73 (S-73), Amplifier 86 (A-86) and Tripler 88 (T-88), (col. 8, lines 23-49), the that the S-73, A-86 and T-88 together form a modulating circuit that up-converts the broadcasting

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signals to a 60 GHz “millimeter waves” signal to be transmitted indoors (col. 4, lines 19-31); the claimed “a millimeter wave transmission circuit transmitting the millimeter waves” is met by Transmitting Antenna (TA) 95 (col. 8, lines 34-37), which transmits the 60 GHz signal to individual receiver units;

Macdonald fails to explicitly teach a transmitter, that receives 60 GHz in door signals.

However, note the **Tanishima** reference figure 1 discloses a video channel selection type radio transmission apparatus on a cable side in the network and a video channel selection type radio reception apparatus on a subscriber side, where the transmission apparatus transmits/receives 60 GHz signals to/from the reception apparatus, note figures 1, 4, 5 and col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald in order to provide a transceiver to enable the user to control the transceiver and select channels.

Macdonald as modified by Tanishima fails to explicitly teach a receiving circuit that receives an external control signal to control a power supply, to supply power to an antenna.

However, Macdonald further teaches 60 GHz Receiver Unit 100 (fig. 3 and col. 8, lines 50-57) that is coupled to an IRD or Set-top box 110, where an external control signal from a user, controls a power supply “DC signal delivered from IRD or STB 110” to supply power to Antenna 36 via line 112 (fig. 3 and col. 9, lines 15-26).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of modify Macdonald as modify by Tanishima, to provide and external control signal to control the power supply to the Transmitter as desired and conserve power.

As to claim 9, Macdonald further discloses a transmitter Tra-13 comprising a the following: the claimed "a connection unit connectable with an antenna for receiving a plurality of broadcasting waves" is met by Two-Channel LNB (TC-LNB) 16 (fig 2 and col. 7, lines 35-37), note that TC-LNB 16 is connected between a Receiving Horn (Rec-H) 60 and Antenna (Ant) 14 and signals received by Ant 14 is reflected into Rec-H 60 and is provided to TC-LNB 16; the claimed "power supply circuit supplying power to said antenna..." is met by bias tee 64 (col. 7, lines 41-44), which supplies driving DC signal to Ant 14 through TC-LNB 16, note further that TC-LNB 16 extends to Amplifier (Amp) 66 and Insertion Unit (IU) 68 "a broadcast wave input circuit..." (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; the claimed "power supply circuit operates on the basis of said external control signal..." is met as previously discussed with respect to claim 8

As to claim 10, Macdonald fails to explicitly teach a power control circuit controlling execution/interruption of power supply of to plurality of circuits including the Transmitter 13.

Macdonald further teaches 60 GHz Receiver Unit 100 (fig. 3 and col. 8, lines 50-57) that is coupled to an IRD or Set-top box 110, where an external control signal from a user, controls a power supply "DC signal delivered from IRD or STB 110" to supplying power control circuit controlling execution/interruption of power supply of a LB 108, etc., "plurality of circuits" including the Rec 100 (col. 9, lines 15-27)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the teaching of the Receiving Unit into the transmitting to control the power supply to the various circuits in the Transmitter thereby conserving power.

As to claim 11, Macdonald fails to explicitly teach utilizing storage circuit storing identification information input from the receiving circuit, where the identification information indicates identification information of IRD or STB 110 "an electronic apparatus" output signals from Tra-13 and power control circuit operates on the basis of the identification information.

However, **Tanishima** teaches VCSRTra 41 and VCSRRec 51 apparatuses that transmits/receives 60 GHz signals, where storage circuit inherent VCSRTra 41, stores channel selection information "identification information" input from VCSRRec 51, and where the channel selection information indicates channel selection information output signals received from VCSRRec 51 of the user to VCSRTra 41 and the control signal operates on the basis of the channel selection information, (figs 1, 4, 5 and col. 5, lines 32-64).

Therefore it would have been obvious to one of ordinary skill in the art at the time of to modify Macdonald system with channel selection as taught by Tanishima in order to control channel selection a transceiver, directing the channel selection requested to the appropriate device in the customer premises and reduce devices in the home.

Macdonald fails to explicitly teach a power control circuit operating on the basis of identification information of electronic apparatus.

Macdonald further teaches 60 GHz Receiver Unit 100 (fig. 3 and col. 8, lines 50-57) that is coupled to an IRD or Set-top box 110, where an external control signal from a user, controls a power supply "DC signal delivered from IRD or STB 110" to supplying power to control a specific frequency band of the Rec 100 (col. 9, lines 15-27)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the teaching of the Receiving Unit into the transmitting, to provide a Transceiver for storing identification information of channels or devices to enable routing of information and control of power supply to various device and conserve power.

4. Claim 40, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Macdonald et al (5,835,128)** in view **Goodson et al (5,636,244)**.

As to claim 40, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose an electronic apparatus having a function of receiving television broadcasting. The claimed electronic apparatus comprising...is met

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as follows: the claimed "a millimeter wave receiving circuit..." is met by Receiving Antenna (RA) 36, note figure 3 and col. 8, line 50-65, note that RA 36 is a receiving circuit that receives 60 GHz "millimeter waves" obtained by up-converting a plurality of broadcasting waves output Transmitting Antenna 95; the claimed "a broadcasting wave demodulation circuit..." is met by Low Noise Block (LNB) 108, note col. 8, line 61-col. 9, line 44, note that LNB 108 is a demodulation circuit that down-converts the 60 GHz signal to the frequency band of the broadcasting waves.

Macdonald fails to specifically teach an inverse frequency arranger, changing the frequency arrangement of output signals of the broadcasting wave demodulation circuit, and a transmission circuit transmitting a control signal for controlling the Transmitting Antenna 95.

However, **Goodson** teaches a communications device such as a modem with an Inverse frequency translator 730 (fig. 7, lines 35-60) for inversely translating frequency received.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Goodson into the system of Tanishima to provide a Inverse frequency translator to inversely translate frequencies received to compensate for resonance and other undesirable distortion.

5. Claims 19-25, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Macdonald et al (5,835,128)** in view of **Ackermann et al (6,137,280)** applied to 12 above, and further in view of **Parlato (5,820,464)**.

As claims 19-23, Macdonald as modify by Ackermann, teaches all the claimed limitations has previously discussed with respect to claim 12, but fails teaches a connector that rotates about an axis and having a variably settable direction.

However the concept of connecting unit rotating and bending is well known as taught by **Parlato**, note figures 6, 9 and col. 6, line 55-col. 7, line 25.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Parlato into the system of Macdonald as modify by Ackermann to provide a connector that can flexibly attach devices as a unit and have complete control of all the devices.

As to claim 24, Macdonald further discloses receiving level detection circuit determining the receiving level in the Receiving Antenna (RA) 36, note figure 3 and col. 8, line 50-65, and outputting a signal responsive to the result of determination; a video/audio signal processing circuit producing at least one of a video signal and an audio signal on the basis of internal information of RU 100, note col. 9, lines 27-44, a modulation circuit modulating the signal produced by the video/audio signal processing circuit to broadcasting wave receivable in the TV Set and a mixing circuit mixing an output wave from the modulation circuit with broadcasting waves input through the connection unit, note col. 9, lines 27-44, and where the video/audio signal processing circuit changes the information signal in response to the output of the receiving level detection circuit.

As to claim 25, Macdonald further discloses a Television Unit "display unit" capable of making display responsive to the output of the receiving level detection

circuit and executes the display also when the RU 100 is disconnected from the connected, note col. 9, lines 15-26.

6. Claims 16, 27, 28, 31, 35, 43 and 44, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Macdonald et al (5,835,128)** in view **Ackermann et al (6,137,280)** as applied to 12, 27, 30 and 34 above and further in view **Goodson et al (5,636,244)**.

As to claims 16, Macdonald as modified by Ackermann teaches all the claim limitation as previously discussed with respect to claims 12, but fails to explicitly teach A millimeter wave receiver comprising an inverse frequency arranging circuit changing the frequency of output signals from the broadcasting wave demodulation circuit.

However, **Goodson** teaches a communications device such as a modem with an Inverse frequency translator 730 (fig. 7, lines 35-60) for inversely translating frequency received.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Goodson into the system of Tanishima as modified by Ackermann to provide a Inverse frequency translator to inversely translate frequencies received to compensate for resonance and other undesirable distortion.

As to claim 27 and 28, Macdonald teaches all the claimed limitation as previously discussed with respect to claim 26 and further teaches a Receiving Unit (RU) 100 for receiving 60 GHz signals but fails to specifically teach a transmission circuit transmitting a control signal for controlling a millimeter and transmitting a control signal received from STB 110 or TV Unit to transmitter R-13.

However, note the **Tanishima** reference figure 1 discloses a video channel selection type radio transmission apparatus on a cable side in the network and a video channel selection type radio reception apparatus on a subscriber side, where the reception apparatus receives/transmits 60 GHz signals from/to the transmission apparatus, note figures 1, 4, 5 and col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald as modified by Ackermann in order to provide a transceiver to enable the user to communicate with other transceivers to select the desired channels.

Claim 31 is met as previously discussed with respect to claim 27.

Claim 35 is met as previously discussed with respect to claim 28.

As to claim 43, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose a millimeter wave communication system for performing millimeter wave radio transmission indoors. The claimed millimeter wave transmitter comprising...is met as follows: Two-Channel LNB (TC-LNB) 16 (fig 2 and col. 7, lines 35-37), is connected between a Receiving Horn (Rec-H) 60 and Antenna (Ant) 14 and signals received by Ant 14 is reflected into Rec-H 60 and is provided to TC-LNB 16; the claimed "power supply circuit supplying power to said antenna..." is met by bias tee 64 (col. 7, lines 41-44), which supplies driving DC signal to Ant 14 through TC-LNB 16, note further that TC-LNB 16 extends to Amplifier (Amp) 66 and Insertion

Unit (IU) 68 “a broadcast wave input circuit...” (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; the claimed “a broadcast wave modulation circuit up-converting said broadcasting signals to millimeter waves...” is met by Summer 73 (S-73), Amplifier 86 (A-86) and Tripler 88 (T-88), (col. 8, lines 23-49), the that the S-73, A-86 and T-88 together form a modulating circuit that up-converts the broadcasting signals to a 60 GHz “millimeter waves” signal to be transmitted indoors (col. 4, lines 19-31); the claimed “a millimeter wave transmission circuit transmitting the millimeter waves” is met by Transmitting Antenna (TA) 95 (col. 8, lines 34-37), which transmits the 60 GHz signal to individual receiver

The claimed millimeter wave receiver comprising... is met as follows: the claimed “a millimeter wave receiving circuit...” is met by Receiving Antenna (RA) 36 (fig. 3 and col. 8, line 50-65), note that RA 36 is a receiving circuit that receives 60 GHz “millimeter waves” obtained by up-converting a plurality of broadcasting waves, to be transmitted/received indoors; the claimed “a broadcasting wave demodulation circuit...” is met by Low Noise Block (LNB) 108, (col. 8, line 61-col. 9, line 44) note that LNB 108 is a demodulation circuit that down-converts the 60 GHz signal to the frequency band of the broadcasting waves; the claimed “a connection unit...” is Line 112 (col. 9, lines 15-27), note that Line 112 is a connection that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set “an electronic apparatus” having a function of receiving broadcasting, note further that IRD or Set-top box (STB) 110, includes a power

transmitter, that drives DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112.

Macdonald fails to explicitly teach a transmitter, that receives 60 GHz in door signals.

However, note the **Tanishima** reference figure 1 discloses a video channel selection type radio transmission apparatus on a cable side in the network and a video channel selection type radio reception apparatus on a subscriber side, where the transmission apparatus transmits/receives 60 GHz signals to/from the reception apparatus, note figures 1, 4, 5 and col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald in order to provide a transceiver to enable the user to control the transceiver and select channels.

Macdonald as modified by Tanishima, fails to explicitly teach first and second connectors provided on the IRD or Set-top box (STB) 110.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald as modified by Tanishima to provide connectors to flexibly link device together as a unit.

As to claim 44, note the **Macdonald et al** reference figure 3, disclose a wireless television signal distribution system for distributing television signals received from a satellite or other source to a plurality of individual receiving units within one or more multiple dwelling units and further disclose and further disclose a millimeter communication system for performing millimeter wave radio transmission indoors. The claimed communication system comprising...is met as follows: The claimed repeater comprising...is met as follows: the claimed "broadcasting wave input circuit..." the claimed "a broadcasting wave input circuit..." is met by Amplifier (Amp) 66 and Insertion Unit (IU) 68 (col. 7, lines 44-58), note that Amp 66 and IU 68 are input circuits that receives plurality of broadcast waves through TC-LNB 16 and converts the broadcast waves to broadcasting signals corresponding to the broadcast waves respectively; note that Tra 13 and RU 100 together meets the claimed repeater; the claimed "a frequency arranging circuit temporarily converting a radio frequency signal band of terrestrial waves to a higher intermediate frequency band, thereby changing the frequency..." is met by Mixer 70 and Local Oscillator (LO) 72 (col. 7, lines 59-65), note that Mixer 70 and LO 72 form a frequency arrangement circuit that temporarily converts the RF signal of Antenna 69 (col. 7, lines 48-51) "terrestrial waves" a local television signal to a higher intermediate frequency (from 13.0 GHz to 13.95-14.70 GHz) band, thereby changing the frequency arrangement of the broadcasting signals. Two-Channel LNB (TC-LNB) 16

(fig 2 and col. 7, lines 35-37), is connected between a Receiving Horn (Rec-H) 60 and Antenna (Ant) 14 and signals received by Ant 14 is reflected into Rec-H 60 and is provided to TC-LNB 16; the claimed "power supply circuit supplying power to said antenna..." is inherent to IRD or Set-top box (STB) 110 "terminal" (col. 9, lines 15-27), which supplies driving DC signal to Ant 95 or RU 100 through Line 112; note further that IRD or Set-top box (STB) 110, drives DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112;

the claimed "a millimeter wave transmitter for receiving output signals of said repeater and transmitting millimeter waves signals...." is met Repeater 56, which includes connections to Antennas 120 and 124 (fig. 4, col. 9, lines 45-65); the claimed "second power supply..." is inherent to Repeater 56, note that power is necessary for R 56 to function; the claimed "broadcast wave modulation circuit..." is inherent to R 56 (col. 9, lines 54-65), note that R 56 receives 60 GHz waves and transmits 60 GHz waves indoors;

The claimed millimeter wave receiver comprising... is met as follows: the claimed "a millimeter wave receiving circuit..." is met by Receiving Antenna (RA) 36 (fig. 3 and col. 8, line 50-65), note that RA 36 is a receiving circuit that receives 60 GHz "millimeter waves" obtained by up-converting a plurality of broadcasting waves, to be transmitted/received indoors; the claimed "a broadcasting wave demodulation circuit..." is met by Low Noise Block (LNB) 108, (col. 8, line 61-col. 9, line 44) note that LNB 108

is a demodulation circuit that down-converts the 60 GHz signal to the frequency band of the broadcasting waves; the claimed "a connection unit..." is Line 112 (col. 9, lines 15-27), note that Line 112 is a connection that connects RU 100 to IRD or Set-top box (STB) 110 and also to a TV Set "an electronic apparatus" having a function of receiving broadcasting, note further that IRD or Set-top box (STB) 110, includes a power transmitter, that drives DC input signal to RU 100 to control the RU 100 to select a frequency band containing the desired television signal. Note further that, RU 100, inherently includes receptor circuit that receives driving power from IRD or Set-top box (STB) 110 through Line 112.

Macdonald fails to explicitly teach a transmitter, that receives 60 GHz in door signals.

However, note the **Tanishima** reference figure 1 discloses a video channel selection type radio transmission apparatus on a cable side in the network and a video channel selection type radio reception apparatus on a subscriber side, where the transmission apparatus transmits/receives 60 GHz signals to/from the reception apparatus, note figures 1, 4, 5 and col. 5, lines 32-col. 6, line 1+.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tanishima into the system of Macdonald in order to provide a transceiver to enable the user to control the transceiver and select channels.

Macdonald as modified by Tanishima, fails to explicitly teach first and second connectors provided on the IRD or Set-top box (STB) 110.

However, **Ackermann et al** teaches female 238, 240 which can be mated on output 34 male connectors connecting a DC source a Control Unit 218 (fig. 2, col. 4, col. 52-60 and col. 8, lines 51-col. 8).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Ackermann into the system of Macdonald as modified by Tanishima to provide connectors to flexibly link device together as a unit.

As to claim 45, Macdonald further discloses a control signal transmission circuit, transmitting a control signal through the connection unit (col. 7, line 41-col. 8, line 20), note the channel information contains control signals.

As to claim 49, Macdonald further discloses where the electronic apparatus is a TV receiver (col. 9, lines 15-27).

Claim 50 is met as previously discussed with respect to claim 16.

Claim 51 is met as previously discussed with respect to claim 16.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3 and 5-51 have been considered but are moot in view of the new ground(s) of rejection discussed above. This Office Action is a Non-Final.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Park (6,650,359) discloses audio-visual recording apparatus.

Byrne (6,406,314) discloses electrical interface interconnection assembly with pivotal end connnetor.

Lee et al (6,222,882) disclose adaptive motion estimation method of a luminance signal.

Ehsani (5,208,740) discloses inverse dual converter for high-power applications.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q Shang** whose telephone number is **703-305-2156**. The examiner can normally be reached on 700am-500pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W Miller** can be reached on **703-305-4795**. The fax phone number for the organization where this application or proceeding is assigned is **(703) 872-9306**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Customer whose** telephone number is **703-306-0377**.



Annan Q. Shang



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